The Large-sized Building-Foundations IIFJT1 on the Walled-town Site of the Mid Taosi Period in Xiangfen County, Shanxi

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Large-sized Building-foundations IIFJT1 lie in the lesser walled-town of the mid Taosi period, with the back close to the inner southern wall Q6 of the greater walled-town of the mid Taosi period and the front facing to the south-east (Figure 1). Through five-season works from the spring of 2003 to the spring of 2005, the excavation of their main part was completed on the whole, revealing an area of 1,964.9m². In 2003, half result of the excavation was published (Zhonggou 2004), but the data was highly incomplete, and the presently published material can be taken as an effective supplement.

Stratigraphical Deposits

Take Trial Trench IITG10 in the northeast of the foundations as an example.

Stratum 1 is a layer of cultivated earth, loose and light yellow, measuring 0.2–0.25m in thickness. Stratum 2A belongs to modern times and is slightly loose and light yellow, measuring 0.25–0.70m thick and containing ceramic shards and flat-tile fragments. Stratum 2B is also a cultural layer of modern times, reddish-yellow in color and loose in texture; it is 0.3–0.9m thick and contains ceramic shards and flat-tile fragments. Strata 3 and 4 are absent in this excavation spot. Stratum 5 belongs to the earlier mid Taosi culture and occurs only in IITG10, beneath the third stratum of Ash-trench IIHG3, covering a slope in the opening of Town-wall Q6. It is loose, grayish-brown and 0.1–0.25m thick, and contains rammed earth lumps and a large number of early and mid Taosi pottery shards, which fall into the types of cauldron-and-stove, single-handled pot, horizontal-handled flask, flat-bottomed basin, li tripod, large-mouthed pot, small-mouthed pot, vat and vessel cover.

The foundations of rammed-earth Building IIFJT1 are covered largely by Strata 1 and 2 and partly by Stratum 3. The fourth stratum is present only on the road surface at the southeastern corner-gate of the platform; and the fifth one is limited in the northeastern corner of IIFJT1, on the slope in the opening of Town-wall Q6 where the road trench passes through the wall.

Vestiges

1. Ash-pit IIH24 of the late Taosi culture lies in the north-
west of IITG6, to the east of the platform core of IIFJT1 (Figures 2 & 3). It is opened beneath Stratum 3 and intrudes the rammed earth at the platform core of IIFJT1. The opening is regularly round, and the bottom looks like a cauldron. The whole pit is 6.35m in diameter and 1.2m in depth. It is filled by slightly loose brown earth, which contains quantities of snail shells and shows traces of water soakage. The earth filling yielded a few pottery shards, the discernable belonging to the late Taosi flask rim, small-mouthed carinate-shouldered pot and swollen-legged Bruce tripod rim.

2. Ash-pit IIH28 of the mid Taosi culture is located in the north of Trial Trench TG4, in the southeast of the platform core. It is opened beneath Stratum 2B, intrudes immature earth and is intruded by Ash-pit IIH23, tomb IIM24 and the foundation trench of observation-pillar gaps of IIFJT1. The opening is roughly rectangular, with the northeastern corner cut off along a diagonal owing to the intrusion of the foundation pit of IIFJT1. This pit has sloping walls and a roughly flat bottom, and measures 7.08m in length, 1.9–2.84m in width and 1.92m in depth. Its earth filling can be divided into two layers. The first layer is formed of the red immature earth got from nearby, which is loose and 0.4–1.3m thick. The second layer consists of loess mixed with red immature earth lumps. It is also loose and measures 0.6–1.54m in thickness. The two layers yielded earlier mid Taosi culture pottery vessels of the vase, large-mouthed pot and small-mouthed carinate-shouldered pot (See Figure 2).

3. Ash-trench IIHG3 of the late Taosi culture is revealed in Trial Trenches IITG3, IITG5, IITG8 and IITG10 in the east of the rammed-earth platform of IIFJT1. It is opened beneath Stratum 3B and is intruded by Ash-trench IIHG5 within Trial Trench IITG10. Be-
Figure 3. A vertical view of building-foundations IIFJT1 (photo from north to south)

neath it are the road trench and road surface of IIFJT1 and the opening for the road trench passing through Town-wall Q6 in the northeast of IIFJT1. This ash-trench is about 39m in length from the north to the south for the revealed section, about 3.5m in width from the west to the east (about 11m in width for the opening in Q5), and 0.3-1m in depth. The deposits can be divided into four layers, and yielded pottery shards of the early and mid Taosi culture and a number of late Taosi shards, which belong to the types of swollen-legged *li* tripod, ring-foot pot, small-mouthed carinate-shouldered pot, flask, *dou* stemmed vessel and *jia* tripod (Figure 4).

4. The foundation of Town-wall Q6 is discovered on the northern side of IIFJT1, in a section of the inner wall of the larger sub-town of the mid Taosi culture. It measures 56m in length for the revealed part and about 77.8m in width (Figures 5 & 6). The foundation-trench has a cauldron-shaped bottom and is 3.5–6.85m deep (Figure 7). Q6 is largely beneath Stratum 2 and is partly intruded by tombs and a trench of modern times. Its opening is partly covered by Ash-trench IIHG3 and Stratum 5. Its rammed earth yielded pottery shards of the mid Taosi culture.

5. Foundations of IIFJT1 consist of a ring-road foundation and a platform base. They lie in front of Q6, the inner southern wall of the larger town of mid Taosi period, protruding an over-half-round (or bow-shaped) structure (See Figures 2 & 3), with a west-to-east chord measuring about 60m in length and the total area about 1,740m² (not including the town-wall). The Q6 town-wall and the whole structure are built of earth by small-shutter-ramming with joints staggered except for the immature-earth cores of the bow-shaped structure and the crescent platform.

The ring-road foundation refers to the semi-annular road foundation skirting the bow-shaped platform. It is opened beneath Stratum 3B for the eastern part and beneath Stratum 2 for the western part. The eastern trench-shaped section is covered by Ash-trench IIHG3 and intrudes immature earth. The whole curve of the road foun-
The eastern section of the road foundation passes through Town-wall Q6, forming an opening, or a pit roughly U-shaped in plan (Figures 2, 5 & 8), which measures about 11m in length from the north to the south, about 8m in width from the west to the east, and about 1.2m in depth for the center. The pit bottom is paved with a layer of pottery shards (Layer ⑤) perhaps for preventing slip. From the joint of the road trench and the opening’s slope in the U-shaped pit bottom, an upward sloping sub-course extends to the southwest, towards the center of the IIFJT1 platform, while the main course of the road trench extends upwards to the south towards the east of the platform, forming a trench lower than the ground surface with a depth of 0.3–0.7m. After passing through the corner gate in the southeast of the platform, the road trench goes farther with its foundation level with the surface of immature earth, then skirts the south and west of the platform and finally joins up with Town-wall Q6. It is about 1.5–3m deep. In the southwest of the platform, the road foundation protrudes a sub-course, which joins up with the foundation of the second circle and has a depth of 1.5–2.5m.

The rammed-earth platform has an immature-earth core. Its remains are beneath Stratum 3B for the part to the east of Trial Trench IITG4 and beneath Stratum 2 for that to the west of IITG4, and measures 40m in west-to-east diameter, about 29m in north-to-south chord, and about 1,000m² in area. It must have consisted of three circles of structures (see Figure 2).

The first circle is to the due east of the main body of the platform, including the crescent immature-earth core. It measures 31m in arc length, 3.2–3.5m in width, and 1–3m in foundation depth. The second circle looks like a complete semi-ring and measures 68m in arc length, 5–8m in width and 6–6.5m in foundation depth as known from drilling. Its eastern and western sections join with Town-wall Q6. On its inner side, a rather large rammed reddish mixed-earth block was found to bear a vertical gap (numbered Gap D12) that divides the block into the northern half (E1) and the southern one (E2). The third circle consists of the semi-circular platform-core and the crescent rammed-earth strip formed mainly of the southeastern rammed-earth retaining wall and the foundation of the rammed-earth pillars that are arranged in a curved line. The eastern half of the platform foundation is situated beneath Stratum 3, and the western one, beneath Stratum 2. The platform-foundation pit intrudes immature earth.

The immature-earth platform-core is semi-circular in plan with the diameter about 28m and the chord length (including the rammed-earth strip of the third terrace) about 21m. The rammed-earth strip measures 30m in arc
Figure 5. Plan of Building-foundations IIFJT1
1. yellow primary earth  2. Road surface

Figure 6. Wall Q3 (photo from east to west)

Figure 7. Section of the opening of Wall Q6 in Trial Trench TG10

Figure 8. Opening for the roadside ditch (photo from south to north)
length, 3.5m in width and 2.3–4m in foundation depth.

The foundation of the rammed-earth retaining wall is built in the periphery, in the shape of an arc that is formed of 17 regularly rectangular rammed-earth blocks and measures 22.5m in total arc length, 1.1m in width and 2.7m in depth.

On the inner side of the retaining wall is a rammed-earth wall-foundation, the trench of which is about 19m in arc length, 1.25–1.6m in width, and 1.9–3m in depth. Atop the wall-foundation, man-dug narrow grooves were found forming a series of gaps between rammed-earth pillars (Figure 9). These gaps are numbered East-1 to East-10 in south-to-north order. They are several to over ten centimeters in remaining depth (Table 1), and divide the top of the foundation wall into 11 rammed-earth blocks (D1–D11), which and the rammed-earth blocks of the wall foundation (D12–D13) form 13 block atop the foundation wall of the pillars and their gaps (Figures 10 & 11; Table 2).

Gap East-11 differs from the others. It is not a gap mark atop the rammed-earth foundation-wall but the in-

Table 1. Size and Angle of the Gaps and Gap East-11

<table>
<thead>
<tr>
<th>No.</th>
<th>Plan</th>
<th>Section</th>
<th>Length</th>
<th>Width</th>
<th>Remaining depth</th>
<th>Azimuth of middle line</th>
<th>Angle between middle lines</th>
<th>Angle of elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>East-1</td>
<td>Narrow long</td>
<td>Round-bottomed</td>
<td>120</td>
<td>30</td>
<td>6</td>
<td>131° 04' 4.7&quot;</td>
<td>5° 33' 33&quot;</td>
<td></td>
</tr>
<tr>
<td>East-2</td>
<td>Narrow long</td>
<td>Round-bottomed</td>
<td>120</td>
<td>25</td>
<td>6</td>
<td>125° 02' 44.2&quot;</td>
<td>5° 48' 34&quot;</td>
<td></td>
</tr>
<tr>
<td>East-3</td>
<td>Narrow long</td>
<td>Round-bottomed</td>
<td>130</td>
<td>20</td>
<td>4</td>
<td>118° 52' 18.7&quot;</td>
<td>5° 31' 43&quot;</td>
<td></td>
</tr>
<tr>
<td>East-4</td>
<td>Narrow long</td>
<td>Round-bottomed</td>
<td>130</td>
<td>20</td>
<td>9</td>
<td>112° 40' 47.2&quot;</td>
<td>6° 07' 53&quot;</td>
<td></td>
</tr>
<tr>
<td>East-5</td>
<td>Narrow long</td>
<td>Round-bottomed</td>
<td>135</td>
<td>20</td>
<td>10</td>
<td>105° 59' 59.2&quot;</td>
<td>7° 11' 56&quot;</td>
<td></td>
</tr>
<tr>
<td>East-6</td>
<td>Narrow long</td>
<td>Round-bottomed</td>
<td>125</td>
<td>20</td>
<td>9</td>
<td>100° 38' 16&quot;</td>
<td>5° 46' 22&quot;</td>
<td></td>
</tr>
<tr>
<td>East-7</td>
<td>Flared</td>
<td>Cuneiform</td>
<td>145</td>
<td>Inner 20</td>
<td>16</td>
<td>94° 27' 52.2&quot;</td>
<td>4° 15' 53&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Outer 50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East-8</td>
<td>Narrow long</td>
<td>Round-bottomed</td>
<td>150</td>
<td>20</td>
<td>8</td>
<td>89° 06' 21.7&quot;</td>
<td>3° 19' 28&quot;</td>
<td></td>
</tr>
<tr>
<td>East-9</td>
<td>Flared</td>
<td>Round-bottomed</td>
<td>165</td>
<td>Inner 15</td>
<td>8</td>
<td>82° 18' 14.7&quot;</td>
<td>2° 15' 41&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Outer 40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East-10</td>
<td>Flared</td>
<td>Round-bottomed</td>
<td>190</td>
<td>Inner 14</td>
<td>4</td>
<td>74° 35' 30&quot;</td>
<td>1° 54' 23&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Outer 20</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>East-11</td>
<td>The side view looks like a gap</td>
<td></td>
<td>0.5</td>
<td>66° 4’ 31&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East-12</td>
<td>Narrow long</td>
<td>Round-bottomed</td>
<td>160</td>
<td>40</td>
<td>17</td>
<td>60° 20' 54.7&quot;</td>
<td>1° 15' 29&quot;</td>
<td></td>
</tr>
</tbody>
</table>

* 1. Taer Hill lies in front of Gap East-5, a little to the south, with an elevation angle of 7° 16' 44". 2. The azimuths in the table do not include magnetic declination. 3. The surveying instrument for measuring the elevation angle of the gap middle lines is 1.81m high except for that used to Gaps East-3, -11 and -12 (1.91m).
interval between Rammed-earth Blocks D1 and E2, a narrow gap 0.5m in width seen from the observation point.

The rammed-earth foundation of the observation point is located a bit to the west of the center of the immature-earth platform-core, at the GPS coordinates N35°52′55.9″ and E111°29′54.9″. It is formed of a round foundation-pit and three concentric rammed-earth circles, measuring 30cm in remaining depth. The pit intrudes immature earth and lies directly beneath Stratum 2. It is 160cm in major axis and 142cm in minor axis. The concentric rammed-earth remains measure 25cm in diameter for the core circle, 42cm for the second circle, and 98cm and 86cm in major axis and minor axis respectively for the third circle (Figures 12 & 13).

It should be noted that the simulated observation point fixed according to our calculation is just located in the

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**Table 2. Rammed-earth blocks atop the pillar foundation and those of the wall foundation**

<table>
<thead>
<tr>
<th>No.</th>
<th>Shape</th>
<th>Length</th>
<th>Width</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>Triangle</td>
<td>2.3</td>
<td>0.15–1.4</td>
<td>2.2</td>
</tr>
<tr>
<td>D2</td>
<td>Parallelogram</td>
<td>1.7</td>
<td>1.25</td>
<td>2.4</td>
</tr>
<tr>
<td>D3</td>
<td>Trapezoid</td>
<td>1.25</td>
<td>1.15–1.2</td>
<td>2.6</td>
</tr>
<tr>
<td>D4</td>
<td>Rectangle</td>
<td>1.5</td>
<td>0.85</td>
<td>2.4</td>
</tr>
<tr>
<td>D5</td>
<td>Rectangle</td>
<td>1.25</td>
<td>1.05</td>
<td>2.4</td>
</tr>
<tr>
<td>D6</td>
<td>Trapezoid</td>
<td>1.25</td>
<td>0.9–1.05</td>
<td>1.9</td>
</tr>
<tr>
<td>D7</td>
<td>Rectangle</td>
<td>1.3</td>
<td>1.2</td>
<td>2.2</td>
</tr>
<tr>
<td>D8</td>
<td>Rectangle</td>
<td>1.3</td>
<td>1.15</td>
<td>2</td>
</tr>
<tr>
<td>D9</td>
<td>Trapezoid</td>
<td>1.25</td>
<td>0.95–1.3</td>
<td>3.3</td>
</tr>
<tr>
<td>D10</td>
<td>Trapezoid</td>
<td>1.2</td>
<td>0.85–1.1</td>
<td>3.3</td>
</tr>
<tr>
<td>D11</td>
<td>Rectangle</td>
<td>2.6</td>
<td>1.22</td>
<td>3</td>
</tr>
<tr>
<td>D12</td>
<td>Rectangle</td>
<td>1.3</td>
<td>1.1</td>
<td>3</td>
</tr>
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<td>D13</td>
<td>Rectangle</td>
<td>1</td>
<td>1.3</td>
<td>3</td>
</tr>
<tr>
<td>E1</td>
<td>Rectangle</td>
<td>1.5</td>
<td>0.8</td>
<td>5.4</td>
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<tr>
<td>E2</td>
<td>Rectangle</td>
<td>1.7</td>
<td>0.8</td>
<td>4.7</td>
</tr>
</tbody>
</table>

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**Figure 10. Rammed-earth foundation of the observation point and that of the pillar gaps**

**Figure 11. Foundation of the pillar gaps (photo from southwest to northeast)**
core circle of the Taosi observation point, 4cm east of the center of the core circle.

The remains of the rammed-earth foundation attached to the platform core were discovered a little east of the immature-earth platform-core. It looks like a large-sized mirror image of "6"; the south has largely been destroyed by the intrusion of IIH24, an ash-pit of the late Taosi culture (see Figure 2). Its plan is about 9.7m in remaining length and about 7m in width. The rammed-earth foundation-remains in the bottom of IIH24 are 1.3m in depth.

Objects

The unearthed objects of the mid Taosi culture are largely pottery vessels, especially shards. These are mainly clay and sandy gray ware and are rather widely varied in type.

Small-mouthed carinate-shouldered pots, five pieces. IIH28:1 is a broad-carinate-shoulder shard with sparse basket marks on the belly. Remaining height 7.5cm (Figure 14:4). IITG107 has a sloping rim and a sloping neck. Mouth diameter 14cm (Figure 15:5).

Large-mouthed pot, one piece (IIH28:2). It has a flared mouth, which measures 18cm in diameter (Figure 14:1).

Pots, three pieces. IIH28:3 has a contracted mouth, a slightly shown shoulder and a plain surface. Mouth diameter 13cm (Figure 14:2). IITG10:18 has an out-turned rim and a sloping belly. Mouth diameter 14cm (Figure 16:2).

Vase, one piece (IITG28:4). It has a straight mouth, a high neck and a curved shoulder. The belly is missing. Mouth diameter 6cm (Figure 14:3).

Flasks, four pieces. IITG10:13 has a straight mouth and two cockscomb-shaped handles and bears sparse basket marks. Remaining height 6.8cm (Figure 16:8). IITG10:14 has a straight mouth and two projecting handles, and is decorated with cord marks. Remaining height 5.4cm (Figure 16:7).

Li tripods, three pieces. IITG10:11 has a straight mouth and protruding handles, and bears cord marks. Mouth diameter 16cm (Figure 16:5). IITG8FJT1:1 has completely hollow legs, a sloping belly and no clear division between the belly and the pocket legs. It is decorated with bowstring pattern on the shoulder and with cord marks on the whole body. Remaining height 16.4cm (Figure 15:3).

Bowl, one piece (IITG10:1). It has a wide-opened mouth and a plain surface. Mouth diameter 18cm (Figure 16:4).

Basins, three pieces. IITG10:10 has a wide-opened mouth and a broad carinate rim, and is decorated with faded cord marks. Mouth diameter 30cm (Figure 16:9). IITG10:22 has a carinate rim, a hanging down lip and a sloping belly. Mouth diameter 28.5cm (Figure 16:12).

Dou stemmed vessel, one piece (IITG10:17). It is a black-surfaced brown-bodied clay object with a shallow dish. Mouth diameter 16cm (Figure 16:6).

Vats, two pieces. IITG10:20 has a flared mouth, a carinate rim and a straight belly, and bears cord marks. Mouth diameter 32.5cm (Figure 16:11).

Dish, one piece (IITG10:2). It has a wide-opened mouth, a sloping belly, a flat bottom, and a plain surface. Mouth diameter 12cm (Figure 16:1).

Ring-foot urn, one piece (IITG10:21). It has a con-
Figure 14. Pottery from Ash-pit IIH28
1. Large-mouthed pot (IIH28:2)  2. pot (II28:3)  3. vase (IIH28:4)  4. small-mouthed carinate-shouldered pot (IIH28:1)

Figure 15. Objects from Building-foundations IIIFJT1
1. ring-foot pottery pot (IIIF7JFT1:6)  2. pottery cauldron-and-stove (IIIF6JFT1:5)  3. pottery li tripod (IIIF8JFT1:1)  4. stone arrowhead (IIIF6JFT1:4)  
(scales: 4, 3/4; others 1/5)

Figure 16. Pottery from Stratum 5 in Trial Trench IIITG10
tracted mouth with a clay strip attached to the outside of the rim and is decorated with cord marks. Mouth diameter 30cm (Figure 15:15).

Cauldron-and-stove, one piece (IITG6FJT1:5). It has a short carinate rim, a straight belly, and two horizontally pierced handles, and is decorated with sparse cord marks. Mouth diameter 23.5cm (Figure 16:2).

Ring-foot pot, one piece (IITG7FJT1:6). It has a flat carinate rim, a short sloping neck and a slightly shown shoulder, and is decorated with a circle of bowstring pattern. Mouth diameter 23cm (Figure 16:1).

Stone arrowhead, one piece (IITG7FJT1:4). It has a triangular plan, a rhomboid cross section and is shaped by pressure-flaking. Length 3.3cm (Figure 16:4).

2. The objects of the late Taosi culture are mainly pottery articles of sandy or clay gray ware. Brown vessels and black-surfaced ones also occur in some cases. The stone artifacts include flakes and semi-products, such as axes and yue battle axes.

Ring-foot pots, three pieces. IITG8HG3:48 has a broad carinate rim, a contracted neck and a carinate shoulder, and is decorated with cord marks on the belly. Mouth diameter 26cm (Figure 17:4).

Pots, two pieces. IITG10HG3:32 has a narrow carinate rim and a slightly shown shoulder, and is decorated with cord marks. Mouth diameter 14cm (Figure 17:2).

Flasks, two pieces. IITG8HG3:29 has a straight mouth and a flat rim, and is decorated with basket marks on the belly. Remaining height 4.8cm (Figure 17:6).

Small-mouthed carinate-shouldered pot, one piece (IITG8HG3:30). It has a flared mouth and a carinate rim. Mouth diameter 19.8cm (Figure 17:3).

Swollen-legged li tripods, two pieces. IITG10HG3:31 has a straight mouth and a shallow belly, and is decorated with cord marks on all body. Mouth diameter 25.6cm (Figure 17:8).

Jia tripod, one piece (IITG10HG3:34). It has a contracted mouth measuring 25cm in diameter (Figure 17:9).

Basins, two pieces. IITG8HG3:33 has a wide-opened mouth, an everted lip and a curved belly, and is plain on the surface. Mouth diameter 25cm (Figure 17:5).

Ring-foot urns, two pieces. IITG8HG3:37 has a slightly contracted mouth and a sloping belly, and is plain.

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**Figure 17. Pottery from Ash-trench IIHG3**

on the surface. Mouth diameter 33cm (Figure 17:10). IITG8HG3:39 has a slightly flared mouth and is decorated with cord marks on all body. Mouth diameter 34cm (Figure 17:11).

*Dou* stemmed vessels, two pieces. IITG8HG3:36 has a wide-opened mouth and is plain on the surface. Mouth diameter 20cm (Figure 17:7). IITG8HG3:24 has a flat carinate rim and a sloping wall, and is plain on the surface. Mouth diameter 21cm (Figure 17:1).

Vat, one piece (IITG8HG3:40). It has a slightly contracted straight mouth and a narrow flat rim, and is decorated with crisscross cord marks on the belly. Mouth diameter 43cm (Figure 17:12).

**Conclusions**

The foundations of large-sized Building IIFJT1 on the walled-town site of the mid Taosi culture, with their unique semi-circular shape and 1740m² scale, show a previously unknown peculiar prehistoric building that combined “astronomical observation and calendar giving” with sacrifice. The present excavation clarified that

Gaps East-1 to East-10 and East-12 atop the foundation wall of the pillar intervals are man-dug shallow grooves, which formed an organic scientific system of observation along with the facilities at the observation point. The immature-earth semi-lunar platform, the crescent immature-earth platform-core and the rammed-earth foundation on the platform core may have been vestiges of religious sacrifice.

**Reference**